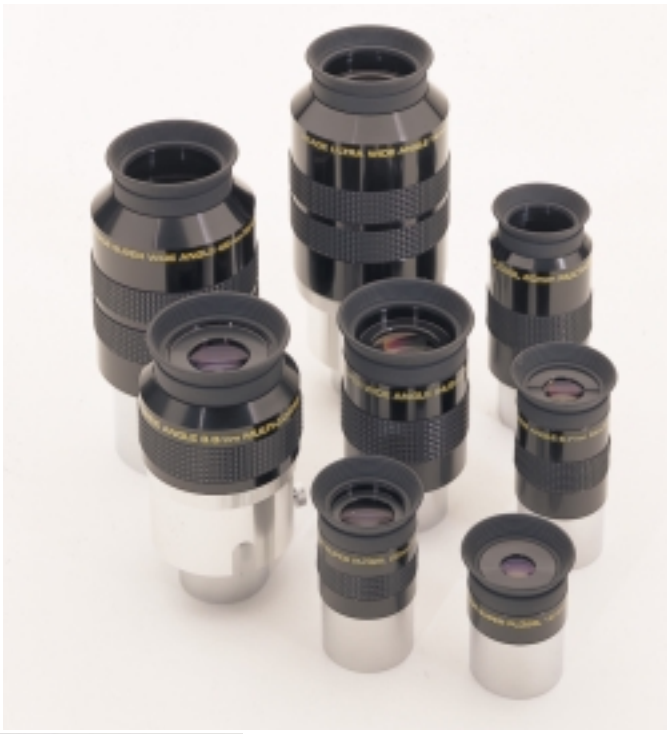
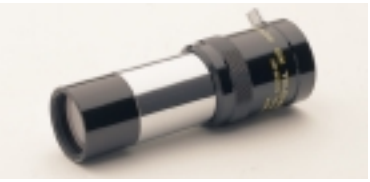
Accessories for Meade *ED* Apochromatic Refractors

See also pp. 94 - 107.





Series 4000 Eyepieces: Meade premium-grade Series 4000 oculars *(above),* including the 8mm - 24mm Zoom Eyepiece, are well-suited to the high-resolution optical systems of the ED/APO's. Magnifications and actual fields for three typical Series 4000 eyepieces are listed below *(see also p. 94)*:

	Power/Actual Field:		
Eyepiece:	SP9.7	SWA40	UWA14
Model 102ED	95X/0.55°	23X/2.9°	66X/1.3°
Model 127ED	118X/0.44°	29X/2.35°	81X/1.03°
Model 152ED	141X/0.37°	34X/1.95°	98X/0.86°
Model 178ED	165X/0.32°	40X/1.67°	114X/0.73°

#140 Series 4000 2x Apochromatic Barlow Lens: The #140 achieves the higher magnifications that are desirable for lunar and planetary imaging and does so with no sacrifice in the main telescope's apochromatic performance. Use the Series 4000 SP 6.4mm eyepiece, for example, and the #140 Barlow to obtain a magnification of 288X with the 102ED/APO or 428X with the 152ED/APO. *(See also p. 96.)*

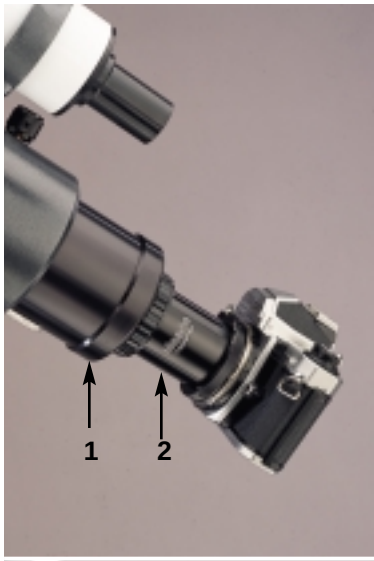
Series 4000 Photo-Visual Color Filters: Meade Series 4000 color filters are useful in enhancing the lunar and planetary images formed by the apochromatic objective lenses. The filters thread into all Meade 1.25" eyepieces and into most other eyepiece brands as well. *For a detailed discussion of filter applications, see pp. 98 - 99.*

Series 4000 Nebular Filters: Meade Broadband and Narrowband Nebular Filters may be effectively used with any ED/APO telescope. One filter model threads into the barrels of Meade (and most other) 1.25" eyepieces; alternately, the #911B or #911N filters thread onto the Universal Thread Adapter, described below (see **T-Adapter**), and convert the telescope into a basic nebular mode. *(See also pp. 100 - 101.)*

T-Adapter; Universal Thread Adapter: Most of the thread-on Meade LX-Series accessories described on *pp. 62 - 63,* including the T-Adapter, Off-Axis Guider, and Tele-Extenders, may also be attached to the ED/APO's using the Universal Thread Adapter (UTA, ①). The UTA threads into the 2.7" I.D. of the telescope's focuser and accepts the threads of LX-Series accessories. With the T-Adapter (②) and appropriate T-Mount attached, the telescope is ready for prime focus photography of Earth or sky.

#777 Off-Axis Guider: As the astro-photos included in this catalog confirm, Meade apochromatic refractors are excellent photographic instruments, capable of exquisite long-exposure results. With the #777 Off-Axis Guider attached through the UTA, above, the observer can monitor the progress of a time-exposure using a selected guide star; an illuminated reticle eyepiece *(below)* is essential in this regard. If the guide star begins to wander off of the eyepiece's reticle crosslines, corrections can be effected using the hand controller of the #1664 or #1697 drive system. *(See also p. 103.)*

Illuminated Reticle Eyepieces: The power panels of the #1664 and #1697 drive systems each include a connector for plug-in of an illuminated reticle eyepiece, shown in the Off-Axis Guider photo, above. Of the two types, wireless and corded, of reticle eyepieces offered *(p. 106)*, the corded type is recommended for use on Meade telescopes with panel connectors, since this type permits brightness-control adjustments to be made *during an exposure* without the observer touching the telescope itself. A knob on the handbox of the #1664 EDS permits adjustment of the crossline brightness. The keypad of the #1697 CDS permits ten crossline brightness levels, and includes in addition a *pulse-mode*, whereby the illumination pulses on/off according to three selectable schedules, each of which is adjustable in brightness.



Variable Tele-Extender: Eyepiece-projection is generally the preferred method for lunar and planetary photography; in this case a Tele-Extender is required. To use the Meade Variable Tele-Extender with an ED/APO telescope, follow this set-up: telescope focuser + Universal Thread Adapter *(p. 74)* + eyepiece-holder (1.25") + eyepiece + Tele-Extender. The 35mm camera body then couples to the Tele-Extender with an appropriate T-Mount.

#812 Polar Alignment Finder: Meade LXD 650 and LXD 750 equatorial mounts have provision in their polar axes for the addition of the #812 Polar Alignment Finder, a borescope device that facilitates quick, precise polar alignment of the telescopes. The reticle internal to the Finder contains an etched clock-like scale; the separate Polar Reference Circle, included, shows the correct position of the North Star (Polaris) on the Finder's reticle scale at any time and day of the year.

#1812 Electronic DC Adapter: The #1664 EDS and #1697 CDS drive systems described elsewhere on this page operate from an input voltage of 18 volts DC. For field use of the drive systems from a 12-volt automobile cigarette lighter plug, the compact #1812 Electronic DC Adapter should be employed; a 25 ft. cord is included.

#1207 Electric Focuser *(below)***:** Designed to yield extremely smooth, precise microfocusing of the image, the Meade #1207 Electric Focuser attaches readily to the manual focusing system of all APO models. The electric focuser cord plugs directly into the power panels of the #1664 EDS or #1697 CDS, with actuation from the hand controllers of these units. Manual, coarse focusing of the image is not affected by the addition of the #1207 unit.

Motor Drive Systems: Factory pre-installed on all Meade apochromatic models as standard-equipment are two DC servo motors, one each inside the polar and declination axes. Installing either of the optional drive systems requires no more than a few minutes and entails simple plug-in connection of the declination motor to the power panel and attachment of the power panel to the declination casting. **Alternately, either the #1664 EDS or #1697 CDS may be factory-installed at no additional cost, if requested at the time of order.** Once installed, the drive system is totally integrated to the mount, with no motors or electronics externally visible. Either drive system, #1664 or #1697, may be added to any Meade APO model; each includes a 25 ft. cord and adapter for operation from any 115v AC outlet. (For field operation from 12v auto cigarette lighter plug, see the #1812 Adapter on this page.)

#1697 Computer Drive System *(above)*: Supplied with handheld keypad controller, the #1697 CDS includes a wide range of electronic and software features not generally available on commercial telescopes, features that make observing a deeply rewarding and pleasurable experience for beginner and seasoned observer alike. For a detailed listing of CDS capabilities, see p. 68.

#1664 Electronic Drive System *(below):* The handbox-actuated functions of the #1664 EDS satisfy many observing requirements. Included with the EDS are two dual-axis drive speeds (2x and 32x sidereal), permanently-programmable Smart Drive, and a special control panel with connectors for important telescope functions. See p. 68 for further details.